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L28 same 123

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DB=PGPB,USPT,USOC,EPA,B,JPA,B,DWPI; PLUR=YES;
OP=ADJ

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DB=EPAB; PLUR=YES; OP=ADJ

<u>L5</u>	WO-200032253-A1.did.	0	<u>L5</u>
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*DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; PLUR=YES;
OP=ADJ*

<u>L4</u>	6206931.pn.	2	<u>L4</u>
<u>L3</u>	L2 with L1	7	<u>L3</u>
<u>L2</u>	barium or tantalum or bismuth or radiopaque	314437	<u>L2</u>
<u>L1</u>	tissue submucosa or collage\$ biomaterial	245	<u>L1</u>

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L29: Entry 50 of 107

File: USPT

Feb 10, 2004

DOCUMENT-IDENTIFIER: US 6689103 B1

** See image for Certificate of Correction **

TITLE: Injection array apparatus and method

Detailed Description Text (21):

To aid the physician in visualizing the vascular pathway, radiopaque contrast solution may be dispensed from distal end 28 of sheath 22 to enhance fluoroscopic visualization. In one method in accordance with the present invention, radiopaque contrast solution is urged through lumen 26 of sheath 22. Sheath 22 and injection catheter 40/140 may also include radiopaque markers. One example of a radiopaque marker is a band of radiopaque material disposed proximate the distal end of injection catheter 40/140 and/or sheath 22. Radiopaque bands of this type aid the physician in determining the location of the distal end of the device relative to the patient's anatomy. The radiopaque band may be comprised of a number of materials. Examples of materials which may be suitable in some applications include gold, platinum, tungsten, iron, silver, and thermoplastic material loaded with a radiopaque filler. Examples of radiopaque filler which may be suitable in some applications include barium sulfate, bismuth subcarbonate, bismuth trioxide, bismuth oxychloride, bismuth subcarbonate, tungsten powder, and depleted uranium.

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L29: Entry 50 of 107

File: USPT

Feb 10, 2004

DOCUMENT-IDENTIFIER: US 6689103 B1

** See image for Certificate of Correction **

TITLE: Injection array apparatus and method

Detailed Description Text (21):

To aid the physician in visualizing the vascular pathway, radiopaque contrast solution may be dispensed from distal end 28 of sheath 22 to enhance fluoroscopic visualization. In one method in accordance with the present invention, radiopaque contrast solution is urged through lumen 26 of sheath 22. Sheath 22 and injection catheter 40/140 may also include radiopaque markers. One example of a radiopaque marker is a band of radiopaque material disposed proximate the distal end of injection catheter 40/140 and/or sheath 22. Radiopaque bands of this type aid the physician in determining the location of the distal end of the device relative to the patient's anatomy. The radiopaque band may be comprised of a number of materials. Examples of materials which may be suitable in some applications include gold, platinum, tungsten, iron, silver, and thermoplastic material loaded with a radiopaque filler. Examples of radiopaque filler which may be suitable in some applications include barium sulfate, bismuth subcarbonate, bismuth trioxide, bismuth oxychloride, bismuth subcarbonate, tungsten powder, and depleted uranium.

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L3: Entry 1 of 7

File: PGPB

Aug 12, 2004

PGPUB-DOCUMENT-NUMBER: 20040158185
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040158185 A1

TITLE: Embolization device**PUBLICATION-DATE:** August 12, 2004**INVENTOR-INFORMATION:**

NAME	CITY	STATE	COUNTRY	RULE-47
Moran, Christopher J.	Town & Country	MO	US	
Bleyer, Mark W.	West Lafayette	IN	US	
Kozma, Thomas G.	Lafayette	IN	US	
Patel, Umesh H.	West Lafayette	IN	US	

US-CL-CURRENT: 602/41**CLAIMS:****What is claimed is:**

1. An embolization device, comprising: a collagenous biomaterial (12); a radiopaque marker (18) disposed on the collagenous biomaterial (12); and the collagenous biomaterial (12) having a thrombogenic component.
2. The embolization device of claim 1, wherein the collagenous biomaterial comprises a biocompatible submucosa (10).
3. The embolization device of claim 2, wherein the collagenous biomaterial further comprises a submucosa (10) having an endotoxin level less than 12 endotoxin units per gram.
4. The embolization device of claim 2, wherein a pharmacologic agent is (14) disposed on the collagenous biomaterial.
5. The embolization device of claim 4, wherein the pharmacologic agent further comprises at least one of a growth factor, protein, proteoglycan, glycoprotein, glycosaminoglycan, physiological compatible mineral, antibiotic, chemotherapeutic agent, pharmaceutical, enzyme, genetic material, and hormone.
6. The embolization device of claim 2, wherein the collagenous biomaterial further comprises a lyophilized component.
7. The embolization device of claim 2, wherein the thrombogenic component further comprises at least one of a brush-like, braided, branched, coil, cubic, cylindrical, helical, injectable, layered, randomized, sheet-like, spherical, and tubular component (16).

8. The embolization device of claim 1, wherein the collagenous biomaterial further comprises at least a tunica submucosa and a lamina muscularis mucosa of an intestine.
9. The embolization device of claim 1, wherein the thrombogenic component further comprises a backbone and the collagenous biomaterial further comprises submucosa.
10. The embolization device of claim 1, wherein the thrombogenic component comprises at least one thrombogenic fibril.
11. The embolization device of claim 1, wherein a collagenous biomaterial further comprises submucosa and the thrombogenic component further comprises a coil.
12. The embolization device of claim 11, wherein the thrombogenic component further comprises the coil having at least one thrombogenic fibril.
13. The embolization device of claim 1, wherein a pharmacologic agent is disposed on the collagenous biomaterial.
14. The embolization device of claim 13, wherein the pharmacologic agent is taxol, or a taxol derivative.
15. The embolization device claim 1, wherein the collagenous biomaterial further comprises at least one of a urinary bladder, pericardium, basement membrane, amniotic membrane, tissue mucosa, gastric submucosa, and stomach submucosa tissues.
16. The embolization device of claim 15, wherein the collagenous biomaterial further comprises a biocompatible tissue.
17. The embolization device of claim 15, wherein a pharmacologic agent is disposed on the collagenous biomaterial.
18. The embolization device of claim 17, the pharmacologic agent (14) further comprises at least one of a growth factor, protein, proteoglycan, glycoprotein, glycosaminoglycan, physiological compatible mineral, antibiotic, chemotherapeutic agent, enzyme, pharmaceutical, taxol, taxol derivative, genetic material, and hormone.
19. The embolization device of claim 15, wherein the collagenous biomaterial further comprises a lyophilized component.
20. The embolization device of claim 15, wherein the collagenous biomaterial further comprises at least one of a brush-like, braided, branched, coil, cubic, cylindrical, helical, injectable, layered, randomized, sheet-like, spherical, and tubular component (16).
21. The embolization device of claim 15, wherein the thrombogenic component further comprises a central backbone and the collagenous biomaterial further comprises submucosa.
22. The embolization device of claim 15 wherein the thrombogenic component comprises at least one thrombogenic fibril.
23. The embolization device claim 15 wherein the thrombogenic component comprises a coil.

- 24. The embolization device claim 23, wherein the coil further comprises at least one thrombogenic fibril.
- 25. The medical device, comprising: a means for filling a blood vessel or an aneurysm; and a radiopaque marker disposed on the means.
- 26. The medical device of claim 25, wherein the means for filling includes a collagenous biomaterial, the collagenous biomaterial comprising at least one of a submucosa, pericardium, basement membrane, amniotic membrane, mucosa, liver, gastric submucosa, stomach submucosa, and urinary bladder submucosa.
- 27. A method for occluding a vascular vessel, comprising delivering to the vessel an embolization device comprising submucosa so as to occlude the vascular vessel.
- 28. The method of claim 27, wherein the embolization devices comprises a coil.
- 29. The method of claim 27, wherein the submucosa is porcine submucosa.
- 30. The method of claim 27, wherein the embolization device comprises at least one sheet of submucosa.

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L3: Entry 4 of 7

File: PGPB

Jul 25, 2002

DOCUMENT-IDENTIFIER: US 20020099448 A1

TITLE: MULTI-FORMED COLLAGENOUS BIOMATERIAL MEDICAL DEVICE

Detail Description Paragraph:

[0079] The collagen biomaterial can be made radiopaque by a variety of conventional procedures, none of which has yet been applied to tela submucosa. In one embodiment of the invention, the collagen material has a shape, namely made into sheets, either in lyophilized or non-lyophilized form. With reference to FIGS. 1, 2A, and 2B, any radiopaque substance 40, including but not limited to, tantalum such as tantalum powder, can be spread along the surface of the tela submucosa, such as on the serosal side. Other radiopaque materials 40 comprise bismuth and barium, including but not limited to, bismuth oxychloride and barium sulphate, as well as other conventional markers. As used herein, the term "disposed" on shall be construed to include disposed on, disposed throughout, disposed in, disposed with, disposed along with, applied on, applied with, applied through, applied in, applied in conjunction with, and the like. With particular reference to tela submucosa, the differential porosity of the material can enable more radiopaque material 40 to be disposed on the tela submucosa.

CLAIMS:

7. The collagenous biomaterial of claim 6 wherein a radiopaque marker is disposed on the submucosa.

16. The collagenous biomaterial of claim 15 wherein a radiopaque marker is disposed on the submucosa.

26. The collagenous biomaterial of claim 25, wherein a pharmacologic agent and a radiopaque marker are disposed on the submucosa.

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<u>L4</u>	6206931.pn.	2	<u>L4</u>
<u>L3</u>	L2 with 11	7	<u>L3</u>
<u>L2</u>	barium or tantalum or bismuth or radiopaque	314437	<u>L2</u>
<u>L1</u>	tissue submucosa or collage\$ biomaterial	245	<u>L1</u>

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L9: Entry 1 of 13

File: PGPB

Jan 27, 2005

DOCUMENT-IDENTIFIER: US 20050021136 A1

TITLE: Method for suturelessly attaching a biomaterial to an implantable bioprosthesis frame

Detail Description Paragraph:

[0036] The valve flaps 12 preferably are of a collageneous biomaterial and can be constructed using a variety of collagen-rich biomaterials, e.g., a synthetic collagen matrix or of native tissue-derived, collagen-rich biomaterials such as pericardium, peritoneum, dura mater, fascia and bladder or ureteral acellular matrices.

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L9: Entry 2 of 13

File: PGPB

Jan 27, 2005

DOCUMENT-IDENTIFIER: US 20050021026 A1

TITLE: Method of fusing biomaterials with radiofrequency energy

Detail Description Paragraph:

[0050] For the purposes herein, an elastin biomaterial will be discussed, however, it is envisioned that other biomaterials may also be utilized in a similar fashion to accomplish the same or similar purposes as described herein. For example, there are many types of collagen biomaterial sheets, collagenous bioartificial blood vessels, and collagen grafts. Various methods exist for the manufacture of different biomaterials. Moreover, collagen can come from naturally occurring tissues such as dura matter or pericardium, or the collagen may be reconstituted into collagen sheets made from either bovine intestines, bovine skin, or Achilles tendon which are bathed in or combined with proteolytic enzymes, acids, alkalis, and/or ethylene oxides. Spidroin, the elastin-like protein in spider webs, may also be used as a biomaterial for the purposes herein.

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L9: Entry 10 of 13

File: USPT

May 5, 1998

DOCUMENT-IDENTIFIER: US 5746775 A

TITLE: Method of making calcification-resistant bioprosthetic tissue

Abstract Text (1):

A method of treating a collagenous biomaterial, such as porcine aortic valve leaflets or bovine pericardium, by exposing the biomaterial to an alcohol to inhibit *in vivo* calcification. The biomaterial, preferably glutaraldehyde-pretreated, is subjected to an aqueous solution of 60% to 80% lower aliphatic alcohol, such as ethanol for a period of at least 20 minutes, and preferably, 24 to 72 hours. The biomaterial is rinsed, and then stored in either a glutaraldehyde-free environment or an ethanolic solution of glutaraldehyde. In some embodiments, the treatment solutions include an additional anticalcification agent which may be a soluble salt of a metallic cation, such as Al.⁺3 or Fe.⁺3.

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L9: Entry 11 of 13

File: USPT

Sep 18, 1990

DOCUMENT-IDENTIFIER: US 4958008 A

**** See image for Certificate of Correction ****

TITLE: Process for crosslinking of collagen by introduction of azide groups as well as tissues and biomaterials obtained by use of the process

Detailed Description Text (72):

Of course, and as comes out from the above, the process that has just been described, applied to the pericardium can be applied to any other collagen tissue. It is suitable, of course, for achieving any reconstituted collagen-based biomaterial such as films, sponges, tubes, etc.

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L11: Entry 21 of 22

File: USPT

Jun 10, 2003

US-PAT-NO: 6576265

DOCUMENT-IDENTIFIER: US 6576265 B1

TITLE: Tissue regenerative composition, method of making, and method of use thereof

DATE-ISSUED: June 10, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Spievack; Alan R.	Cambridge	MA		

US-CL-CURRENT: 424/551; 623/13.17

CLAIMS:

We claim:

1. A composition, comprising: devitalized mammalian epithelial basement membrane, tunica propria, and tunica muscularis, wherein said basement membrane, tunica propria, and tunica muscularis are delaminated from epithelial cells of a mammalian epithelium.
2. A composition comprising: devitalized mammalian epithelial basement membrane and submucosa, wherein said basement membrane and submucosa are delaminated from the cells of a mammalian epithelium.
3. A method for manufacture of a devitalized tissue graft composition, comprising: deepithelializing a mammalian epithelial tissue to form a devitalized tissue having an epithelial basement membrane; and, abrading said devitalized tissue on an abluminal surface of said tissue to form a delaminated tissue, wherein the delaminated tissue remaining after abrading said tissue, comprises at least a portion of the epithelial basement membrane and said delaminated tissue comprising said basement membrane induces endogenous tissue restoration.
4. The method of claim 3 wherein deepithelializing said mammalian tissue comprises placing said tissue in a deepithelializing solution comprising 1.0 N saline.
5. The method of claim 3 wherein said abluminal surface comprises a tissue surface deeper than said epithelial basement membrane.
6. The method of claim 3 wherein said epithelial tissue comprises urinary bladder.
7. The method of claim 3 wherein said epithelial tissue comprises small intestine.

8. A matrix for inducing repair of tissue in a mammal, comprising: an isolated devitalized mammalian epithelial basement membrane wherein said basement membrane is derived from small intestine, and the tunica propria immediately subjacent to said basement membrane.

9. The composition of claim 1 further comprising cells.

10. The composition of claim 9 wherein said cells comprise cells from a cultured cell line.

11. A method for inducing repair of diseased, defective or damaged tissue in mammal, said method comprising: providing to the defect site, a devitalized matrix comprising a mammalian epithelial basement membrane wherein said matrix induces repair of said tissue when placed in contact with said tissue.

12. The method of claim 11 wherein said repair comprises induction of connective tissue repair and epithelial tissue repair at said tissue defect site.

13. The method of claim 11 wherein the source of said epithelial basement membrane is the intestine.

14. The method of claim 11 wherein the source of said epithelial basement membrane is the urinary bladder.

15. The method of claim 3 wherein said epithelial tissue comprises intestine.

16. The composition of claim 2 further comprising cells.

17. The composition of claim 16 wherein said cells comprise cells from a cultured cell line.

18. The matrix of claim 8 further comprising cells.

19. The matrix of claim 18 wherein said cells comprise cells from a cultured cell line.

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L16: Entry 1 of 7

File: USPT

Aug 10, 2004

DOCUMENT-IDENTIFIER: US 6774278 B1
TITLE: Coated implantable medical device

Brief Summary Text (18):

Preferably, when the device is intended for use in the vascular system, the bioactive material in the at least one layer is heparin or another antiplatelet or antithrombotic agent, or dexamethasone, dexamethasone acetate, dexamethasone sodium phosphate, or another dexamethasone derivative or anti-inflammatory steroid. Furthermore, a wide range of other bioactive materials can be employed, including, but not limited to, the following categories of agents: thrombolytics, vasodilators, antihypertensive agents, antimicrobials or antibiotics, antimitotics, antiproliferatives, antisecretory agents, non-steroidal anti-inflammatory drugs, immunosuppressive agents, growth factors and growth factor antagonists, antitumor and/or chemotherapeutic agents, antipolymerases, antiviral agents, photodynamic therapy agents, antibody targeted therapy agents, prodrugs, sex hormones, free radical scavengers, antioxidants, biologic agents, radiotherapeutic agents, radiopaque agents and radiolabelled agents. The major restriction is that the bioactive material must be able to withstand the coating techniques, for example, the vacuum employed during vapor deposition or plasma deposition of the at least one porous layer. In other words, the bioactive material must have a relatively low vapor pressure at the deposition temperature, typically, near or at room temperature.

Detailed Description Text (17):

A wide range of other bioactive materials can be delivered by the device 10. Accordingly, it is preferred that the bioactive material contained in the layer 18 includes at least one of heparin, covalent heparin, or another thrombin inhibitor, hirudin, hirulog, argatroban, D-phenylalanyl-L-poly-Larginyl chloromethyl ketone, or another antithrombogenic agent, or mixtures thereof; urokinase, streptokinase, a tissue plasminogen activator, or another thrombolytic agent, or mixtures thereof; a fibrinolytic agent; a vasospasm inhibitor; a calcium channel blocker, a nitrate, nitric oxide, a nitric oxide promoter or another vasodilator; Hytrin.RTM. or other antihypertensive agents; an antimicrobial agent or antibiotic; aspirin, ticlopidine, a glycoprotein IIb/IIIa inhibitor or another inhibitor of surface glycoprotein receptors, or another antiplatelet agent; colchicine or another antimitotic, or another microtubule inhibitor, dimethyl sulfoxide (DMSO), a retinoid or another antisecretory agent; cytochalasin or another actin inhibitor; or a remodelling inhibitor; deoxyribonucleic acid, an antisense nucleotide or an other agent for molecular genetic intervention; methotrexate or another antimetabolite or antiproliferative agent; tamoxifen citrate, Taxol.RTM. or the derivatives thereof, or other anti-cancer chemotherapeutic agents; dexamethasone, dexamethasone sodium phosphate, dexamethasone acetate or another dexamethasone derivative, or another anti-inflammatory steroid or non-steroidal antiinflammatory agent; cyclosporin or another immunosuppressive agent; trapidol (a PDGF antagonist), angiopeptin (a growth hormone antagonist), angiogenin, a growth factor or an anti-growth factor antibody, or another growth factor antagonist; dopamine, bromocriptine mesylate, pergolide mesylate or another dopamine agonist; .sup.60 Co (5.3 year half life), .sup.192 Ir (73.8 days), .sup.32 P (14.3 days), .sup.111 In (68 hours), .sup.90 Y (64 hours), .sup.99m Tc (6 hours) or another radiotherapeutic agent; iodine-containing compounds, barium-containing compounds, gold, tantalum,

platinum, tungsten or another heavy metal functioning as a radiopaque agent; a peptide, a protein, an enzyme, an extracellular matrix component, a cellular component or another biologic agent; captopril, enalapril or another angiotensin converting enzyme (ACE) inhibitor; ascorbic acid, alpha tocopherol, superoxide dismutase, deferoxamine, a 21-aminosteroid (lasaroid) or another free radical scavenger, iron chelator or antioxidant; a .sup.14 C-, .sup.3 H-, .sup.131 I-, .sup.32 P- or .sup.36 S-radiolabelled form or other radiolabelled form of any of the foregoing; estrogen or another sex hormone; AZT or other antipolymerases; acyclovir, famciclovir, rimantadine hydrochloride, ganciclovir sodium, Norvir, Crixivan, or other antiviral agents; 5-aminolevulinic acid, meta-tetrahydroxyphenylchlorin, hexadecafluoro zinc phthalocyanine, tetramethyl hematoporphyrin, rhodamine 123 or other photodynamic therapy agents; an IgG2 Kappa antibody against *Pseudomonas aeruginosa* exotoxin A and reactive with A431 epidermoid carcinoma cells, monoclonal antibody against the noradrenergic enzyme dopamine beta-hydroxylase conjugated to saporin or other antibody targeted therapy agents; gene therapy agents; and enalapril and other prodrugs; Proscar.RTM., Hytrin.RTM. or other agents for treating benign prostatic hyperplasia (BPH) or a mixture of any of these; and various forms of small intestine submucosa (SIS).

Other Reference Publication (4):

Bruce Humphrey, Using Parylene for Medical Substrate Coating, Jan./Feb. 1996
Medical Plastics and Biomaterials.

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File: PGPB

Oct 24, 2002

DOCUMENT-IDENTIFIER: US 20020156531 A1

TITLE: Biomaterial system for in situ tissue repair

Detail Description Paragraph:

[0150] Optionally, inorganic fillers, such as calcium carbonate, titanium dioxide or barium sulfate can be added as well, in about 0.5 to about 20 percent (by weight) to affect the viscosity and thixotropic properties of the resultant mixture, to modify or increase the load bearing ability of the polymer and/or to render the implanted biomaterial radiopaque.

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L17: Entry 50 of 136

File: PGPB

Jul 25, 2002

DOCUMENT-IDENTIFIER: US 20020099448 A1

TITLE: MULTI-FORMED COLLAGENOUS BIOMATERIAL MEDICAL DEVICE

Detail Description Paragraph:

[0079] The collagen biomaterial can be made radiopaque by a variety of conventional procedures, none of which has yet been applied to tela submucosa. In one embodiment of the invention, the collagen material has a shape, namely made into sheets, either in lyophilized or non-lyophilized form. With reference to FIGS. 1, 2A, and 2B, any radiopaque substance 40, including but not limited to, tantalum such as tantalum powder, can be spread along the surface of the tela submucosa, such as on the serosal side. Other radiopaque materials 40 comprise bismuth and barium, including but not limited to, bismuth oxychloride and barium sulphate, as well as other conventional markers. As used herein, the term "disposed" on shall be construed to include disposed on, disposed throughout, disposed in, disposed with, disposed along with, applied on, applied with, applied through, applied in, applied in conjunction with, and the like. With particular reference to tela submucosa, the differential porosity of the material can enable more radiopaque material 40 to be disposed on the tela submucosa.

CLAIMS:

7. The collagenous biomaterial of claim 6 wherein a radiopaque marker is disposed on the submucosa.

16. The collagenous biomaterial of claim 15 wherein a radiopaque marker is disposed on the submucosa.

26. The collagenous biomaterial of claim 25, wherein a pharmacologic agent and a radiopaque marker are disposed on the submucosa.

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L17: Entry 56 of 136

File: PGPB

Aug 9, 2001

DOCUMENT-IDENTIFIER: US 20010012968 A1

TITLE: Enhanced visibility materials for implantation in hard tissue

Summary of Invention Paragraph:

[0010] Preferably the hard tissue implant and the radiopaque particles, according to the present invention, are formed or prepared in a slurry for implantation. The hard tissue implant material preferably includes polymethyl methacrylate. Alternative hard tissue implant materials that may be mixed with the radiopaque particles include hydroxyapatite, various formulations of biocompatible calcium phosphates, biocompatible calcium sulfates, demineralized and/or mineralized bone particles, polymer based implants including polyglycolic acid and or polylactic acid compounds, collagen and/or collagen derivative preparations alone or in combination with other biomaterials, chitin and/or chitosan preparations, bioglasses including oxides of silicon, sodium, calcium and phosphorous and combinations thereof, and other known materials which are acceptable for use as hard tissue implant materials including osteogenic and osteoinductive compositions, and combinations thereof.

Detail Description Paragraph:

[0034] The matrix 3 or implant material into which the radiopaque markers 2 may be mixed, is not limited to PMMA, but may also be added to hydroxyapatite mixtures, calcium phosphate mixtures, calcium sulfate mixtures, demineralized or mineralized bone particle compositions, polymer based implants including polyglycolic acid and or polylactic acid compounds, collagen and/or collagen derivative preparations alone or in combination with other biomaterials, chitin and/or chitosan preparations, bioglasses including oxides of silicon, sodium, calcium and phosphorous and combinations thereof, and other known materials which are acceptable for use as hard tissue implant materials including osteogenic and osteoinductive compositions, and combinations thereof, as well as other known hard tissue fillers and implant materials. Additionally, the tracers may be included in a matrix for soft tissue implantation, including materials such as silicon, collagens, gelatins, and various other soft tissue implant materials.

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L17: Entry 84 of 136

File: USPT

Jan 22, 2002

DOCUMENT-IDENTIFIER: US 6340367 B1

TITLE: Radiopaque markers and methods of using the same

Other Reference Publication (2):

Studies on a new radiopaque polymeric biomaterial, A. Benzina, M.A.B. Kruft, F. Bar, F.H. van der Veen, C.W. Bastiaansen, V. Heijnen, C. Reutelingsperger, and L.H. Koole, Biomaterials 1994, vol. 15 No. 14, pp. 1122-1128.

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L20: Entry 2 of 7

File: PGPB

Jul 15, 2004

DOCUMENT-IDENTIFIER: US 20040137042 A1

TITLE: Multi-formed collagenous biomaterial medical device

Detail Description Paragraph:

[0080] The collagen biomaterial can be made radiopaque by a variety of conventional procedures, none of which has yet been applied to tela submucosa. In one embodiment of the invention, the collagen material has a shape, namely made into sheets, either in lyophilized or non-lyophilized form. With reference to FIGS. 1, 2A, and 2B, any radiopaque substance 40, including but not limited to, tantalum such as tantalum powder, can be spread along the surface of the tela submucosa, such as on the serosal side. Other radiopaque materials 40 comprise bismuth and barium, including but not limited to, bismuth oxychloride and barium sulphate, as well as other conventional markers. As used herein, the term "disposed" on shall be construed to include disposed on, disposed throughout, disposed in, disposed with, disposed along with, applied on, applied with, applied through, applied in, applied in conjunction with, and the like. With particular reference to tela submucosa, the differential porosity of the material can enable more radiopaque material 40 to be disposed on the tela submucosa.

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L17: Entry 14 of 136

File: PGPB

Jun 10, 2004

DOCUMENT-IDENTIFIER: US 20040111149 A1

TITLE: Bioabsorbable marker having radiopaque constituents

Detail Description Paragraph:

[0063] A composite bioabsorbable-radiopaque marker 14 may include a bioabsorbable polymer that is coated, compounded, filled, loaded, or mixed with a radiopaque substance such as iodide, iodine, zirconium oxide, barium sulfate, bismuth trioxide, or a related oxide or salt substance. Composite radiopaque materials may contain at least one element having an atomic number, preferably, higher than about 22. Other radiopaque materials may include gold, platinum, tantalum, metallic biomaterial alloys for coating, and small particles of these materials, preferably, less than 10 microns in size for compounding. For compounding radiopaque constituents and bioabsorbable resins to make extruded bioabsorbable-radiopaque filament, the weight percentage of radiopaque resins to bioabsorbable resins ranges from about 1 percent to about 80 percent. For compounding radiopaque metallic fillers and bioabsorbable resins to make extruded bioabsorbable-radiopaque filament, the weight percentage of radiopaque metallic fillers to bioabsorbable resins ranges from about 1 percent to about 40 percent. The preferred weight percentage of bismuth trioxide and barium sulfate in PLLA filament is a minimum of about 10%. Preferred embodiments of the bioabsorbable-radiopaque marker are set forth below in Table 2.

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(FILE 'HOME' ENTERED AT 16:12:35 ON 15 MAR 2005)

FILE 'MEDLINE, CANCERLIT, BIOTECHDS, EMBASE, BIOSIS, CAPLUS' ENTERED AT
16:13:18 ON 15 MAR 2005

L1 471507 S BIOMATERIAL OR COLLAGE?
L2 36 S PERICADI?
L3 1 S L1 AND L2
L4 1 DUP REM L3 (0 DUPLICATES REMOVED)
L5 65547 S PERICARD?
L6 1453 S L5 AND L1
L7 4704428 S GRAF? OR TISSUE OR TRANSPLA?
L8 1040 S L7 AND L6
L9 188 S BIOMATERIAL AND L8
L10 123 DUP REM L9 (65 DUPLICATES REMOVED)
L11 7107 S RADIOPAQU?
L12 0 S L11 AND L10
L13 0 S L11 AND L6
L14 711696 S CHEMOTHER?
L15 0 S L14 AND L10
L16 3 S L14 AND L8
L17 3 DUP REM L16 (0 DUPLICATES REMOVED)
L18 0 S L10 AND INJE?
L19 22162 S L1 AND INJECT?
L20 10 S L19 AND L11
L21 8 DUP REM L20 (2 DUPLICATES REMOVED)
L22 90641 S BASEMENT MEMBRANE
L23 2576 S AMNIOTIC MEMBRANE
L24 26742 S L22 AND L1
L25 9953 S L24 AND L7
L26 1 S L25 AND L11
L27 379 S L25 AND INJE?
L28 221 DUP REM L27 (158 DUPLICATES REMOVED)
L29 450512 S COLLAGEN?
L30 220 S L29 AND L28
L31 677245 S GRAF? OR TRNASPLA? OR TISSUE REMODEL?
L32 15 S L31 AND L30
L33 493 S L23 AND L31
L34 9 S L33 AND INJEC?
L35 6 DUP REM L34 (3 DUPLICATES REMOVED)
L36 4 S L33 AND GEL
L37 0 S L33 AND MEDICAL DEVICE
L38 18 S L33 AND GROWTH FACTOR
L39 132 S L11 AND L1
L40 6 S L39 AND POWDE?
L41 6 DUP REM L40 (0 DUPLICATES REMOVED)
L42 10 S L39 AND INJEC?
L43 8 DUP REM L42 (2 DUPLICATES REMOVED)
L44 828 S L14 AND L7 AND L1
L45 0 S L44 AND L11
L46 828 S L1 AND L7 AND L14
L47 0 S L1 AND L14 AND L11
L48 68 S L11 AND L14
L49 35 DUP REM L48 (33 DUPLICATES REMOVED)

=>

RESERVED. on STN

AN. 2001314268 EMBASE

TI Bovine **pericardium** for duraplasty: Clinical results in 32 patients.

AU Filippi R.; Schwarz M.; Voth D.; Reisch R.; Grunert P.; Perneczky A.

CS R. Filippi, Department of Neurosurgery, Johannes Gutenberg University, Langenbeckstrasse 1, 55101 Mainz, Germany. filippi@gmx.net

SO Neurosurgical Review, (2001) 24/2-3 (103-107).

Refs: 57

ISSN: 0344-5607 CODEN: NSREDV

CY Germany

DT Journal; Article

FS 008 Neurology and Neurosurgery

027 Biophysics; Bioengineering and Medical Instrumentation

LA English

SL English

AB Bovine **pericardium** has been widely used for **grafts** in cardiac surgery and seems to have suitable properties for use as a dural **graft**. We report on the use of solvent-preserved, gamma-sterilized Tutoplast bovine **pericardium** for dural **grafts** in 32 patients undergoing cranial and spinal operations with the objective of clinically assessing this material and technique by a retrospective analysis. All available records were reviewed and information regarding the indication for **grafting**, complications, and outcome were collected and analyzed for all patients. Indications for **grafting** included tethered cord myelolysis, closure of lumbosacral myeloceles, Chiari decompression, posterior fossa craniotomy, supratentorial craniotomy, and trauma. Outcomes were excellent in 31 patients; the one poor outcome was unrelated to surgical closure. The dural **graft** was not intended for outcome in any patient. Bovine **pericardium** was found to be a flexible and easily suturable, safe and cost-effective material for duraplasty. These results confirm the excellent suitability of Tutoplast bovine **pericardium** for dural substitution.

L10 ANSWER 46 OF 123 CAPLUS COPYRIGHT 2005 ACS on STN

AN 2001:387803 CAPLUS

DN 136:205327

TI Study on cellular matrix via cell extraction from bovine
pericardium

AU Zhou, Jianye; Hu, Shengshou; Ren, Bing; Qi, Guoqi

CS Division of Cardiac Valve, Fuwai Cardiovascular Institute, CAMS and PUMC,
Beijing, 100037, Peop. Rep. China

SO Zhongguo Yixue Kexueyuan Xuebao (2001), 23(2), 193-195

CODEN: CIHPDR; ISSN: 1000-503X

PB Zhongguo Yixue Kexueyuan

DT Journal

LA Chinese

AB An acellular matrix from bovine **pericardial tissue** was obtained, which was a scaffold for **tissue** engineering of heart or cardiovascular patching applications. A four step detergent and enzyme link extraction procedure was practiced. The mechanic properties of the acellular matrix were evaluated, and the components were analyzed biochem. HE staining confirmed the removal of cells and Von Gieson staining showed the integrality of **collagen** and elastin. Biochem. anal. demonstrated the retention of **collagen** and some glycosaminoglycans while the percentage of the soluble proteins reduced slightly. The extraction process is effective to remove cells from bovine **pericardial tissue** while maintains its mech. strength. This approach may eventually lead to a scaffold for heart valves and cardiovascular patching applications in **tissue** engineering.

L10 ANSWER 6 OF 123 CAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:589021 CAPLUS

DN 141:128908

TI Method of preventing surgical adhesions using mammalian **tissue**

IN Oray, B. Nicholas; Mooradian, Daniel

PA Synovis Life Technologies, Inc., USA

SO U.S. Pat. Appl. Publ., 6 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004141956	A1	20040722	US 2003-346240	20030117
	WO 2004066965	A2	20040812	WO 2004-US880	20040115
		W:	AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA, BB, BG, BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN, CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EC, EE, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH, GM, HR, HR, HU, HU, ID, IL, IN, IS, JP, JP, KE, KE, KG, KG, KP, KP, KP, KR, KR, KZ, KZ, KZ, LC, LK, LR, LS, LS, LT, LU, LV, MA, MD, MD, MG, MK, MN, MW, MX, MX, MZ, MZ, NA, NI		

PRAI US 2003-346240 A 20030117

AB The present invention relates to a method and composition for preventing surgical adhesions during surgery. **Tissue** surfaces and/or surgical articles involved in the surgery are separated by a **biomaterial** provided in the form of a non-crosslinked, decellularized and purified mammalian **tissue** (e.g. bovine **pericardium**). The **biomaterial** effectively inhibits fibrosis, scar formation, and surgical adhesions, while also serving as a scaffold for recellularization of the **tissue** site.

L21 ANSWER 1 OF 8 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2004:89801 BIOSIS
DN· PREV200400093256
TI **Injectable** acrylic bone cements for vertebroplasty with improved properties.
AU Garcia Carrodeguas, Raul; Vazquez Lasa, Blanca [Reprint Author]; San Roman del Barrio, Julio
CS Dpto. de Quimica Macromolecular, Instituto de Ciencia y Tecnologia de Polimeros, CSIC, Juan de la Cierva 3, 28006, Madrid, Spain
bvazquez@ictp.csic.es
SO Journal of Biomedical Materials Research, (January 15 2004) Vol. 68B, No. 1, pp. 94-104. print.
ISSN: 0021-9304 (ISSN print).
DT Article
LA English
ED Entered STN: 11 Feb 2004
Last Updated on STN: 11 Feb 2004
AB Currently commercially available acrylic bone cements lack adequate radiopacity and viscosity when they are used in percutaneous vertebroplasty (PVP). In this work improved formulations of **radiopaque** and **injectable** poly(methyl methacrylate) bone cements were prepared with different amounts (10-50 weight%) of BaTiO₃ or SrTiO₃ particles as the **radiopaque** agent. Two sets of cements were prepared by using untreated or silanated **radiopaque** particles, respectively. The influence of the content and nature of the **radiopaque** agent as well as its silanation with 3-(trimethoxysilyl) propyl methacrylate (gamma-MPS), on the curing parameters, residual monomer content, radiopacity, mechanical properties, and **injectability** of the resulting materials, was examined. Doughing and setting times, maximum temperature, and compressive strength of all formulations fulfilled the requirements of standard specifications, with values of peak temperature in the range 57-72degreeC and those of compressive strength between 114 and 135 MPa. Formulations containing at least 20 weight% BaTiO₃ or SrTiO₃ had radiopacities equal to or greater than that corresponding to 2 mm of Al as required for surgical plastics. **Injectability** of any of the formulations provided 75-80 weight% of the total mass manually **injected** through a conventional biopsy needle 4 min after mixing. Silanation of the BaTiO₃ or SrTiO₃ particles led to formulations with improved mechanical properties and **injectability** compared to those obtained with the untreated fillers.

plastic and reconstructive surgery.

L32 ANSWER 4 OF 15 MEDLINE on STN
AN • 1998069037 MEDLINE
DN PubMed ID: 9405963
TI Observations on initial cell loss after intraportal hepatocyte transplantation of 5'-bromo-deoxy-uridine-labeled hepatocytes.
AU Kocken J M; Bouwman E; Borel Rinkes I H; Sinaasappel M; Terpstra O T
CS Department of Surgery, Leiden University Medical Center, The Netherlands.
SO European surgical research. Europaische chirurgische Forschung. Recherches chirurgicales europeennes, (1997) 29 (6) 411-20.
Journal code: 0174752. ISSN: 0014-312X.
CY Switzerland
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199802
ED Entered STN: 19980217
Last Updated on STN: 19980217
Entered Medline: 19980205
AB In the present study, attempts are made to improve posttransplant survival of intraportally transplanted hepatocytes in a syngeneic hepatocyte transplantation (HTX) model. Engrafted hepatocytes were detected and quantified after pretransplant labeling with 5'-bromo-deoxy-uridine. In order to enhance the survival percentage, three mechanisms that possibly influence cell survival were manipulated: (1) administration of Matrigel (extracellular-matrix components, Matrigel Basement Membrane Complex, Micronic BV, Lelystad, The Netherlands) in order to improve the environmental conditions of the transplanted hepatocytes; (2) immunosuppression of the recipients by 5 Gy total body irradiation and cyclosporin-A administration (25 mg/kg, 3 x weekly), and (3) Kupffer cell depletion by injection of dichloromethylene-diphosphonate-filled liposomes. The results were analyzed in relation to HTX without treatment. Cell survival was approximately 14% (10 days after HTX), and the transplanted hepatocytes were distributed equally throughout the various recipient liver lobes. However, no increase was attained by Matrigel coadministration, immunosuppression, or Kupffer cell depletion.

L32 ANSWER 3 OF 15 MEDLINE on STN
AN 1998115874 MEDLINE
DN- PubMed ID: 9448285
TI De novo adipogenesis in mice at the site of **injection** of
basement membrane and basic fibroblast growth factor.
AU Kawaguchi N; Toriyama K; Nicodemou-Lena E; Inou K; Torii S; Kitagawa Y
CS Laboratory of Organogenesis, Nagoya University BioScience Center, Chikusa,
Nagoya 464-01, Japan.
SO Proceedings of the National Academy of Sciences of the United States of
America, (1998 Feb 3) 95 (3) 1062-6.
Journal code: 7505876. ISSN: 0027-8424.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199803
ED Entered STN: 19980319
Last Updated on STN: 19980319
Entered Medline: 19980311
AB Autografting of fat pads has a long history in plastic and reconstructive
surgery for augmentation of lost soft **tissue**. However, the
results are disappointing because of absorption of the **grafts**
with time. The fate of **transplanted** fat is linked to adipose
precursor cells distributed widely in connective tissues. Adipocyte
precursor cells can proliferate and mature into adipocytes even in the
adult body depending on microenvironment. When reconstituted
basement membrane, Matrigel, supplemented with more than
1 ng/ml bFGF was **injected** s.c. into 6-week-old mice, the
neovascularization induced within 1 week was followed by migration of
endogenous adipose precursor cells, and a clearly visible fat pad was
formed. The pad grew until 3 weeks after the **injection** and
persisted for at least 10 weeks. Such de novo adipogenesis was induced
reproducibly by s.c. **injection** of Matrigel and bFGF over the
chest, lateral abdomen, or head. Adipogenesis could be induced even in
ear cartilage or in muscle. Thus, our results demonstrated that an
abundant population of adipose precursor cells is distributed widely in
connective tissues of the adult body and that they migrate into the
neovascularized plug of Matrigel for proliferation and maturation. These
results suggest a technique of augmenting lost soft **tissue** in
plastic and reconstructive surgery.

L43 ANSWER 1 OF 8 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN
AN 2004:89801 BIOSIS

DN PREV200400093256

TI **Injectable acrylic bone cements for vertebroplasty with improved properties.**

AU Garcia Carrodeguas, Raul; Vazquez Lasa, Blanca [Reprint Author]; San Roman del Barrio, Julio

CS Dpto. de Quimica Macromolecular, Instituto de Ciencia y Tecnologia de Polimeros, CSIC, Juan de la Cierva 3, 28006, Madrid, Spain
bvazquez@ictp.csic.es

SO Journal of Biomedical Materials Research, (January 15 2004) Vol. 68B, No. 1, pp. 94-104. print.

ISSN: 0021-9304 (ISSN print).

DT Article

LA English

ED Entered STN: 11 Feb 2004

Last Updated on STN: 11 Feb 2004

AB Currently commercially available acrylic bone cements lack adequate radiopacity and viscosity when they are used in percutaneous vertebroplasty (PVP). In this work improved formulations of **radiopaque** and **injectable** poly(methyl methacrylate) bone cements were prepared with different amounts (10-50 weight%) of BaTiO₃ or SrTiO₃ particles as the **radiopaque** agent. Two sets of cements were prepared by using untreated or silanated **radiopaque** particles, respectively. The influence of the content and nature of the **radiopaque** agent as well as its silanation with 3-(trimethoxysilyl) propyl methacrylate (gamma-MPS), on the curing parameters, residual monomer content, radiopacity, mechanical properties, and **injectability** of the resulting materials, was examined. Doughing and setting times, maximum temperature, and compressive strength of all formulations fulfilled the requirements of standard specifications, with values of peak temperature in the range 57-72degreeC and those of compressive strength between 114 and 135 MPa. Formulations containing at least 20 weight% BaTiO₃ or SrTiO₃ had radiopacities equal to or greater than that corresponding to 2 mm of Al as required for surgical plastics. **Injectability** of any of the formulations provided 75-80 weight% of the total mass manually **injected** through a conventional biopsy needle 4 min after mixing. Silanation of the BaTiO₃ or SrTiO₃ particles led to formulations with improved mechanical properties and **injectability** compared to those obtained with the untreated fillers.

L49 ANSWER 21 OF 35 MEDLINE on STN

DUPLICATE 8

AN 94352595 " MEDLINE

DN PubMed ID: 8072703

TI Chemoembolization in liver malignant involvement. Experiences on 17 cases.

AU Fiorentini G; Campanini A; Dazzi C; Davitti B; Graziani G; Priori T; Ricci Bitti R; Angelini L

CS Department of Medical Oncology, City Hospital Santa Maria delle Croci, Ravenna.

SO Minerva chirurgica, (1994 Apr) 49 (4) 281-5.

Journal code: 0400726. ISSN: 0026-4733.

CY Italy

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199409

ED Entered STN: 19941006

Last Updated on STN: 19941006

Entered Medline: 19940929

AB INTRODUCTION. Liver invasion is the major cause of organ failure in patients with primary liver cancer and metastatic large bowel cancer. Furthermore it causes high morbidity in many other carcinomas. The normal liver presents a double circulation: 75% from portal circulation and 25% from hepatic artery. In malignant primary and secondary lesions the blood support is given by hepatic artery. Antineoplastic drugs mixed to selectively injecting embolic particles, such as polyvinyl alcohol and gelatin powder (Gelfoam), can be injected to infarct tumors and to obtain a therapeutical advantage. Chemoembolization using an emulsion of Lipiodol ultra-fluid (LUF) and drugs is a recent tool in liver regional therapy. LUF has been shown to be taken up hepatocellular carcinoma and retained for a long period of time in the tumor bed. Chemoembolization causes massive shrinkage due to ischemia and increasing the local drug intensity and drug exposure. Our study reports the results of multi-agents chemoembolization (MACHEM) in 17 patients bearing massive liver involvement. MATERIAL AND METHODS. From January 1988 we treated 17 patients (5 HCCs, 7 large bowel carcinomas, 1 gastric cancer, 1 ocular melanoma, 1 pancreas, 1 soft tissue sarcoma, 1 carcinoid) using a transfemoral approach to cannulate the celiac axis and then the hepatic artery. The catheter was advanced into the vessel responsible for the majority of the tumor blood supply and a mixture of Gelfoam, **radiopaque** contrast media, followed by **chemotherapy** (mitomycin 10 mg/sqm, cisplatin 20 mg/sqm, epirubicin 20 mg/sqm) mixed to LUF was injected until vascular stasis occurred. After chemoembolization, analgesics and anti-pyretics were administered. Liver function tests were monitored daily. RESULTS. Objective tumor regression was observed in 11 out 15 evaluable patients; the median duration of survival was 9.5 months. Within 8 weeks shrinkage, due to development of necrosis, appeared in the tumors. One patient with high levels of 5-HIAA due to carcinoid, demonstrated more than 75% decreasing in urinary excretion. In 6 patients out 8 with CEA elevation a clear reduction was documented as well in 2 HCCs out 5 with alfa-fetoprotein elevation. DISCUSSION. The palliation of HCC and metastatic liver disease have been extremely disappointing. Systemic **chemotherapy** produces in HCC a response rate of no more than 20% and does not increase the median survival. Venook obtained 24% of PRs and liquefaction in 35 out 50 HCC treated with chemoembolization. Some results have been also demonstrated in the treatment of metastatic liver tumors by Carrasco, Daniels and Modiano. Moertel stressed that chemoembolization could be incorporated in the initial management of carcinoid. Because of the difference in chemoembolization protocols it is difficult to compare the relative efficacy of this tool, although encouraging response rates have been reported in palliation of bulky tumors. In our study Gelfoam given before LUF and antineoplastic agents mixture produce a distal arteriolar occlusion and this would facilitate the migration of the polychemotherapy emulsion toward the tumor. Our MACHEM program has been shown to have significant activity even in heavily pretreated patients with an acceptable toxicity. We conclude that hepatic arterial chemoembolization will be improved by mean of better combination of **chemotherapy**.

with embolizing agents in well selected patients.

L49 ANSWER 20 OF 35 CAPLUS COPYRIGHT 2005 ACS on STN

AN 1994:264829 CAPLUS

DN 120:264829

TI Crosslinked protein or polysaccharide hydrogels, their preparation, and their use in imaging and therapy

IN Weissleder, Ralph; Bogdanov, Alexei

PA General Hospital Corp., USA

SO PCT Int. Appl., 43 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9403155	A1	19940217	WO 1993-US7314	19930804

W: CA, JP

RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

US 5514379 A 19960507 US 1992-927068 19920807

PRAI US 1992-927068 A 19920807

AB Biocompatible, biodegradable hydrogels are prepared from a backbone compound (proteins and polysaccharides, e.g., albumin, polymannuronic acid, or polygalacturonic acid.) bonded to a crosslinking agent. Suitable crosslinking agents include polyvalent derivs. of polyethylene or polyalkylene glycol. These hydrogel compns. may be loaded with diagnostic labels, e.g., **radiopaque**, paramagnetic, or superparamagnetic materials, or therapeutic drugs, e.g., **chemotherapeutic** drugs, antibiotics, or cells that produce therapeutic agents. Such hydrogels are used for imaging, treatment, and embolization. Bis(N-hydroxysuccinimidyl)polyethylene glycol disuccinate was prepared and reacted with bovine serum albumin (BSA) and Gd-DTPA-BSA to form a paramagnetic hydrogel. The hydrogel was implanted in rats and the dissoln. was observed by repeated magnetic resonance imaging. Peritoneally implanted samples degraded faster than i.m. implanted samples.